

## Equipment Maintenance

## MAINTENANCE MANAGEMENT DETACHMENT 063

This volume explains maintenance management as applicable to Detachment 063 and Equipment Locations (EL) 062, 064 and 067. It defines equipment status and equipment status reporting procedures. The procedures for equipment status reporting will be included in appropriate operating instructions.

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## 1. Terms and Abbreviations Explained:

Actual Maintenance Time - Includes only the time spent in troubleshooting and repair.

AWP - Awaiting Parts for repair of DIFM items.

CAL - Calibration.

CCMEIP-K - Communications/Crypto/Meteorological Equipment inoperative for parts (equipment out of commission).

CCMEIP-L - Communications/Crypto/Meteorological Equipment inoperative for parts (equipment operating in limited or restricted capacity).

C-E - Communications-Electronics.

CHANNEL - Includes the sensor, recorder, and all circuitry in between.

DET - Detachment - An organizational element that is removed from the physical location of its parent unit.

DIFM - Due in from Maintenance.

DOY - Day of Year.

DTG - Date-Time-Group.

DRE - Digital Recording Equipment.

EL - Equipment Location.

ESR - Equipment Status Report.

ETIC - Estimated Time in Commission.

FMC - Fully Mission Capable.

FSP - Forward Supply Point.

GSOC - Global Seismic Operation Center, Headquarters Data Terminal

HQ - Headquarters.

INOP - Inoperative.

JCN - Job Control Number.

MDAT - Mobile Depot Assistance Team.

MTR - Magnetic Tape Recorder.

NMC - Not Mission Capable.

OPR - Office of Primary Responsibility.

PIPR - Plant in Place Records.

PMC - Partial Mission Capable.

PMEL - Precision Measurement Equipment Laboratory.

TCTI - Time Compliance Technical Instruction.

TIC - Time in Commission.

TMDE - Test Measurement and Diagnostic Equipment

UJC - Urgency Justification Code.

UTC - Universal Time Coordinated.

Workcenter Supervisor - Person in charge of the maintenance section.

## 2. Policy:

a. The Office of Primary Responsibility (OPR) for all matters dealing with Detachment 063 and Equipment Locations (EL) 062, 064 and 067 is the Directorate of Plans and Resources (XR) with day-to-day management authority delegated to the Programs Division (XRP).

b. Diplomatic and security constraints require specialized implementation of the maintenance management program. Equipment within Detachment 063 area of responsibility is operated and maintained by the host country personnel, with the Detachment 063 Commander and his staff serving as organizational liaison and advisors on technical and/or logistics matters.

c. All correspondence to Det 063 will be processed IAW CENR 11-6, "Det 063 Program." HQ/XRP will coordinate on all correspondence to Det 063 and the ELs except for routine supply messages (MILSTRIP) and operations data requests. HQ/XRP will be informational addressee on all correspondence from Det 063.

d. As a minimum, the Chief of Maintenance Branch (HQ/LGM) will be informational addressee on all correspondence concerning equipment maintenance and/or maintenance related problems.

(1) Recommendations for improvements to AFR 66-1, or to CENR 66-1 will be sent to HQ/LGM.

(2) Instructions to alter any requirement of this regulation, received from any source other than HQ/LGM will not be implemented until approved by HQ/LGM or higher authority.

## 3. Responsibilities:

a. The Chief of Maintenance is responsible for maintenance management within this organization. This responsibility consists of implementing policies and procedures required to manage the organizational and intermediate level maintenance functions. Because of the relationship with the various equipment locations, the Chief of Maintenance, through the Det 063 Commander, will provide assistance and guidance to ensure that the local maintenance programs complement the organization's programs.

b. The Detachment 063 Commander will:

(1) Encourage personnel at ELs 062, 064 and 067 to follow the procedures as outlined in this regulation.

(2) Be familiar with the various regulations, manuals, technical orders (TO), and technical instructions (TI) applicable to the Det 063 area.

(3) Perform visits to EL 062, 064 and 067 with host government approval.

(4) Consult and coordinate, as necessary, with officials of the host government on matters regarding maintenance activities at the ELs.

(5) Prepare maintenance operating instructions (MOIs) for suggested use by the ELs. All MOIs will be reviewed by HQ/LGM/XRP.

(6) Monitor Equipment Status:

(a) Monitor and forward to headquarters, Equipment Status Reports (ESRs) that are submitted by host personnel.

(b) Maintain an Equipment Status Board (or any other convenient device) to reflect the current equipment status.

(c) Ensure that all ESRs forwarded to headquarters are complete, timely, and accurately reflect the equipment status. NOTE: The requirement for accurate information cannot be overemphasized, due to the excessive time in receiving parts and/or assistance from Depot.

(d) Submit follow-ups to ESRs in sufficient time to avoid expiration of ETICs. The host will be queried for progress reports prior to the expiration of ETICs if none has been supplied.

(7) Periodically review maintenance history to aid in determining trends and/or deficiencies. Provide assistance to host personnel in resolving identified problems.

(8) Monitor equipment operation, and after coordination with the host, initiate request for Depot assistance on maintenance problems that are beyond local capability to repair. Requests for Mobile Depot Assistance Team (MDAT) assistance will be submitted through HQ/LGM.

(9) Advise HQ/LGM of the following:

- (a) Proposed or suggested modifications to technique equipment.
- (b) Unusual maintenance problems.
- (c) Supply difficulties. NOTE: HQ/LGS will be identified as action addressee.
- (d) Maintenance training requirements.
- (e) Any unusual situation that may affect the maintenance capability.

4. Plant-in-Place Records (PIPR). Plant-in-Place records for the technique equipment at the ELs will consist of the following:

- a. A pictorial or block diagram showing the location of the equipment within the building.
- b. Pole line maps and hock charts. A copy of the pole line map will be forwarded to HQ/LGM on an 8 x 10 1/2 inch sheet of paper. Det 063 will maintain a copy of both the pole line map and the hock chart for the respective ELs. The map and hock chart will be prepared in accordance with TI 202W-1-1. Copies to be forwarded need not be as detailed due to the reduced size desired. Send new copies of the pole line map whenever it is updated. Ensure that each PIPR includes an "as of" date to facilitate the updating of records.

5. Corrosion Control:

a. Each EL will be encouraged to establish and implement a fungus and corrosion prevention program.

b. The Det 063 Commander will:

- (1) Assist the ELs in their corrosion control efforts. This will include providing the ELs with technical publications and supplies to arrest and control corrosion and fungus growth.
- (2) Monitor and observe the ELs corrosion control efforts during visits to the units. If corrosion or fungus growth is noted, the applicable station chief will be advised.
- (3) Report ineffective corrosion prevention to the host country officials who are responsible for supervising the ELs. If corrosion and fungus growth is affecting the ELs data acquisition capability, the problem will be reported to HQ/LGM/XRP.

6. Safety. The host government is responsible for the safety standards at the ELs, however, Det 063 personnel will advise the EL staff on safety matters. The ELs will be provided equipment and supplies to enhance their safety programs.

7. Test Measurement and Diagnostic Equipment (TMDE). Precision measurement equipment calibration shall be handled using established procedures. Any problems encountered in this area shall be reported to HQ/LGM/LGS/XRP.

8. Time Compliance Technical Instruction (TCTI) Documentation. Upon completion of a TCTI, the preprinted form on the back page of the TCTI instructions will be filled in and submitted to HQ/LGM. The form will be submitted only after all TCTI actions at the location have been completed. NOTE: Ensure that the AFTO Form 95 and PIPRs are updated.

9. Material Control:

a. Supply request priorities will be upgraded if the supply delivery status is unacceptable and a degradation of equipment capability has or is anticipated to occur.

(2) UJC BE will be used to order items required to repair a system in a Partial Mission Capable (PMC) status. UJC BE may also be used to request parts for essential mission equipment within a Fully Mission Capable (FMC) status.

(3) Anytime UJC AE or BE is used, an ESR or follow-up ESR containing the document number, stock/part number, TI/TO reference, noun, and UJC must be submitted. If an ESR is not required by CENR 66-1 for the work being accomplished, UJC AE and BE cannot be used.

(4) UJC CE will normally be used to order parts for miscellaneous hardware type items for the technique equipment in a FMC status.

(5) UJCs AR and BR are used to requisition parts needed to repair non-operational (DIFM) equipment.

(a) UJC AR is not normally used.

(b) UJC BR will be used to order parts to repair an Awaiting Parts (AWP) item that will become a spare item after it has been repaired. For example, BR would be used to request parts to repair a printed circuit board that will be returned to the Forward Supply Point (FSP).

(c) If an ESR is required by CENR 66-1 for the work being accomplished, UJCs AR and BR cannot be used to request parts for the job; UJCs AE or BE will be used.

(6) UJCs AW and BW will be used to request parts used for civil engineer type of work.

(7) UJCs AZ and BZ will be used only when one of the more definitive types of UJC do not apply. NOTE: When submitting UJC AZ or BZ requests, a complete narrative justification is required.

c. Detachment 063 will:

(1) Forward all approved supply requests submitted by the ELs via message to HQ/LGS. NOTE: If UJC Codes AE or BE are used, an Equipment Status Report (ESR) is required to be submitted in accordance with paragraph 13.

(2) Prepare and maintain a control and suspense file for all supplies ordered/turned in.

(3) Advise HQ/LGS when priority requisitions are received at Det 063 and/or the applicable EL.

(4) Assist the ELs on supply matters. This includes status reviews and visits to the respective ELs to discuss supply issues.

(5) Prepare AF Form 601b, Custodian Request/Receipts, for all equipment items ordered by the ELs. Equipment items may be requested by message. Refer to AFR 67-23, Chapter 8, CEN Sup 1, for the procedures.

(6) Maintain the Custodian Account/Custodian Receipt List (CA/CRL) for the ELs.

(7) Submit follow-up on supply requests in accordance with AFR 67-23, Chapter 5/CEN Sup 1.

(8) Coordinate with the local US support office on transportation of supplies and equipment.

10. Cannibalization. The EL station chiefs can authorize cannibalization; however, Det 063 will encourage the various ELs to report cannibalization. When notified of cannibalization actions, Det 063 will notify HQ/LGM/LGS.

11. Mission Equipment Status. Three categories of mission capability are used to correlate equipment malfunctions to mission status. The following criteria has been established to meet the mission requirements directed by HQ/TGX.

a. EL 062:

(1) Fully Mission Capable (FMC). The station systems contribute to the network's recording and analysis capability at the level for which the system was established. Digital Recording Equipment (DRES) is capable of receiving all transmitted data, time aligning it and

passing it to the Station Processor (STPR). Data passed to the STPR must be processed, properly time tagged and recorded on tape and film. Edit capability and GSOC communications must be operational.

(2) Urgency Justification Code (UJC) BE (Priority 05) will be used to requisition parts for the repair of equipment which contributes to FMC outages. Parts requisitioned under UJC BE, require an ESR or follow-up ESR to be submitted.

(3) Partial Mission Capable (PMC). The station systems are contributing significantly to the network's recording and analysis capability, but are not FMC. Data must be processed, properly time tagged and recorded on tape and film. The station drops to PMC if any one of the following capabilities is lost:

- (a) DRES equipment not able to receive data or pass it to STPR from one station.
- (b) STPR edit capability.
- (c) GSOC communications due to in-house equipment malfunctions.

(4) UJC BE (Priority 05) will be used to requisition parts needed for the restoration of the equipment. Parts requisitioned UJC BE require an ESR or follow-up ESR to be submitted.

(5) Not Mission Capable (NMC). The station systems providing limited or no contribution to the network's analysis and recording capability. The station is in this status whenever any of the following capabilities are lost:

- (a) Data display (film recording).
- (b) Data processing.
- (c) DRES equipment not able to receive data or pass it to the STPR from both stations.
- (d) Timing capabilities (alignment or proper time tagging).

(6) UJC AE (Priority 02) will be used to requisition parts needed for restoration of the equipment. Parts requisitioned UJC AE require an ESR or follow-up ESR to be submitted. NOTE: Parts ordered priority 02 will be downgraded when the system status improves. Lower priority requests will be upgraded when necessary.

b. EL 064:

(1) Fully Mission Capable (FMC). The station systems contributes to the detection and identification capability at the level for which the system was established. Operational channels are calibrated and with tolerance, reference to Universal Time Coordinated (UTC), recorded on film, digitized, recorded on tape, and transmitted to EL 062. Minimum channels to retain an FMC status are:

(a) Short Period Systems:

- 1 UAS array - 9 must be operational.
- 2 KS36000 - all verticals and one high gain horizontal channel must be operational.

(b) Long Period System. KS36000 - vertical and one horizontal must be operational.

(2) Urgency Justification Code (UJC) BE (Priority 05) will be used to requisition parts for the repair of equipment which contributes to FMC outages. Parts requisitioned under UJC BE require an ESR or follow-up ESR to be submitted.

(3) Partial Mission Capable (PMC). The station systems contributes significant data to the detection and identification capability but is not FMC. Operational channels are calibrated and within tolerances, referenced to UTC time, recorded on film, digitized, and recorded on tape or transmitted to EL 062. Minimum channels to retain PMC status are:

(a) Short Period Systems:

- 1 UAS array - 7 must be operational.
- 2 KS36000 - 1 high gain vertical or both high gain horizontals must be operational.

(b) Long Period System. KS36000 - the vertical or both horizontals must be operational.

(c) DRES equipment not able to record or transmit time tagged data.

(4) UJC 3E (Priority 05) will be used to requisition parts needed for the restoration of the equipment. Parts requisitioned UJC 3E require an ESR or follow-up ESR to be submitted.

(5) Not Mission Capable (NMC). The station systems provides limited data to the detection and identification capability. Systems are in this status when they fall below the criteria of PMC or when a scheduled calibration is delayed for more than 96 hours. UJC AE (Priority 02) will be used to requisition parts needed for restoration of the equipment. Parts requisitioned UJC AE require an ESR or follow-up ESR to be submitted. NOTE: Parts ordered Priority 02 will be downgraded when the system status improves. Lower priority requests will be upgraded when necessary.

c. EL 067:

(1) Fully Mission Capable (FMC). The station systems contributes to the detection and identification capability at the level for which the system was established. Operational channels are calibrated and with tolerances, referenced to UTC, recorded on film, digitized, recorded on tape, and transmitted to EL 062. Minimum channels to retain FMC status are:

(a) Short Period Systems:

1 UAS array - 8 must be operational.

2 KS36000 - <sup>1</sup> all verticals and one high gain horizontal must be operational.

(b) Long Period System. KS36000 - vertical and one horizontal must be operational.

(2) Urgency Justification Code (UJC) 3E (Priority 05) will be used to requisition parts for the repair of equipment which contributes to the outages described in paragraph 11a(1) and (2) above. Parts requisitioned under UJC 3E require an ESR or follow-up ESR to be submitted.

(3) Partial Mission Capable (PMC). The station systems contributes significant data to the detection and identification capability but is not FMC. Operational channels are calibrated and within tolerances, referenced to UTC time, recorded on film, digitized and recorded on tape or transmitted to EL 062. Minimum channels to retain PMC status are:

(a) Short Period Systems:

1 UAS array - 6 must be operational.

2 KS36000 - <sup>1</sup> high gain vertical or both high gain horizontals must be operational.

(b) Long Period System. KS36000 - vertical or both horizontals must be operational.

(c) DRES equipment not able to record or transmit time tagged data.

(4) UJC 3E (Priority 05) will be used to requisition parts needed for the restoration of the equipment. Parts requisitioned UJC 3E require an ESR or follow-up ESR to be submitted.

(5) Not Mission Capable (NMC). The station systems provide limited data to the detection and identification capability. Systems are in this status when they fall below the criteria of PMC or when a scheduled calibration is delayed for more than 96 hours. UJC AE (Priority 02) will be used to requisition parts needed for restoration of the equipment. Parts requisitioned UJC AE require an ESR or follow-up ESR to be submitted. NOTE: Parts ordered Priority 02 will be downgraded when the system status improves. Lower priority requests will be upgraded when necessary.

<sup>1</sup> Selected vertical may be used in place of the KS36000 high gain vertical channels.

12. Equipment Restoral Priorities. Immediate maintenance is required for priority one (1) restoral. Maintenance will continue until the priority one (1) condition no longer exists or parts required for repair are ordered. All other maintenance scheduling will be at the discretion of the station chief.

a. EL 062:

(1) Priority 1. Restore the DRES receive capability (if both INOP), time alignment capability, and data processing.

(2) Priority 2. Restore edit capability, magnetic tape recording and remaining receive capability.

(3) Priority 3. Restore GSOC communication.

(4) Priority 4. Restore all other functions.

b. EL 064/067;

(1) Priority 1. Restore recording devices, timing, calibration capabilities and data from array and KS36000 channels required to meet PMC status.

(2) Priority 2. Restore the digitizing capability, EL 062 transmit capability and the remaining processing and calibration functions.

(3) Priority 3. Restore remaining recording capabilities.

(4) Priority 4. Restore the remaining array channels.

(5) Priority 5. Restore valid data from all other channels.

c. Equipment problems encountered which are beyond the ELs capability will be referred to Det 063 Commander. If the Det 063 Commander concurs, assistance will be requested through HQ/LGM in accordance with CENR 66-3. To prevent prolonged equipment outage, it is imperative Det 063 and host government officials realistically evaluate their capabilities to restore inoperative equipment. Requests for assistance must be coordinated with the local support function. The ESR may be used to request assistance.

13. Equipment Status Reporting:

a. Initial Report. Reports will be initiated whenever a technique malfunction or technique outage exceeds 6 hours for PMC or NMC conditions or 96 hours for a FMC condition. If it is determined that parts will have to be ordered to repair an equipment malfunction, the ESR and the parts request will be submitted immediately.

(1) Reports from the Equipment Locations will be transmitted to Det 063. Det 063 will, in turn, transmit the report to HQ/LGM/DOSB/XRP. NMC and PMC condition reports will be transmitted priority precedence. FMC condition reports will be transmitted routine precedence.

(2) All times will be in UTC Date Time Groups (DTG). (Example: 15/2040Z Jan 85.)

(3) All sections will be entered on the message. If there is no information, "NEGATIVE" or "NO CHANGE" will be entered after the section.

(4) The subject line will be in the following format:

SUBJECT: B EQUIPMENT STATUS REPORT (Give Job Control Number (JCN)).

(5) The JCN number to be given in the subject line will consist of the three digit location number, followed by the four digit julian date (the first digit will indicate the current year and the last three digits the julian day), and an alpha character to indicate multiple failures on the same day (A - indicates the first, B the second, C the third, etc.). JCN 0645021A would indicate the first equipment malfunction on 21 Jan 85 at EL 064.

(6) The remainder of the initial ESR message will be in the format shown below:

A - System or systems affected (SPS, LPS or both as applicable), status of system or systems during period of report (FMC, PMC, or NMC), and ZULU date time group of the malfunction (NOTE: The time of the malfunction is required for the initial report only). Example: SPS - PMC - 21/0755Z Jan 85.



B - TIC (ZULU date time group of the time in commission) or ETIC (day and month of estimated time in commission). NOTE: If a TIC is not reported, an ETIC will be reported using your best local information to determine the estimated date.

C - Specific item or items of equipment that failed and a complete description of the malfunction with accompanying symptoms and circumstances surrounding the failure. Concise description of all corrective action taken and/or planned, including the work unit code (WUC). If a time in commission (TIC) was reported in B, include the total actual maintenance time.

D - Whenever parts are ordered to repair or replace equipment identified in C, the nomenclature, stock number or part number, TI number with figure and index, UJC, and document number will be listed.

E - Whenever an item or items are returned to Depot for repair as a result of the reported malfunction, list the WUC, serial number, and document number of each item. If a serial number cannot be reported, the AFTO Form 350 tag number will be reported in place of the serial number.

F - Remarks. Include any assistance required. If assistance is needed on SP or LP frequency responses, include a complete set of frequency response and free period readings. Submit initial and latest set of readings.

b. Follow-Up Reports. Follow-up reports for NMC/PMC conditions will be sent priority precedence and for FMC conditions routine precedence to the same addresses as the initial report. Reports changing status to or from NMC/PMC will be transmitted priority precedence.

(1) The follow-up report will reference the same ESR and JCN as the initial report. The subject line will read:

SUBJECT: B FOLLOW-UP REPORT TO ESR (Give JCN).

(2) If follow-up reports for more than one ESR are provided in one message, each section will be preceded by the reference to the ESR and JCN.

(3) Follow-up reports will be sent:

(a) Within 24 hours of major change in maintenance posture (progress/deterioration) such as ordering parts, failure of additional item(s) of equipment, Test equipment (TMDE) problems, substantial progress in repair efforts, and/or problem is traced to previously unsuspected area, etc.

(b) When an ETIC previously reported cannot be met, a follow-up report will be transmitted to arrive at the addressees before the expiration of the ETIC, give a complete explanation for the delay and provide a new ETIC.

(4) Follow-up reports will use the same format as the initial report. All sections will be completed. "NO CHANGE" (NC) can be entered where there is no new information available.

c. Final Reports. When the follow-up report is also the final report, submit the ESR in the format and JCN of the initial ESR will be used, except the subject line will read:

SUBJECT: B FINAL REPORT TO ESR (Give JCN).

(1) Item C of the final report will explain the action taken to correct the problem. Also include the actual maintenance time and all work unit codes (WUC).